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VIA FACSIMILE & HAND DELIVERY

The Honorable Reed E. Hundt
The Honorable James H. Quello
The Honorable Rachelle B. Chong
The Honorable Susan Ness
Federal Communications Commission
1919 M Street, N.W.
Washington, DC 20554

Re: CC Docket 92-297

Dear Mr. Chairman and Commissioners:

On behalf of Texas Instruments, Inc., this letter is to comment on the proposal to delay implementation of a Local Multipoint Distribution Service ("LMDS") by initiating yet another further notice in the above-captioned proceeding.

Under this plan, LMDS return links -- critical to LMDS interactivity -- would not be allocated in the 28 GHz band; rather, the Commission, after approximately three and a half years of consideration,¹ would defer a decision on LMDS for a necessarily indefinite period of time by proposing that return links for the service be located somewhere in the 31 GHz band. For the reasons detailed below, Texas Instruments urges the FCC to reject further delay, to adopt Option Four Prime and to proceed with the immediate auction and implementation of LMDS.

¹ This proceeding was initiated in 1992 by a Notice of Proposed Rulemaking which proposed the allocation of 2 GHz of spectrum for LMDS -- enough for the auction of two full-fledged LMDS operators in each market. Since that time, the proceeding has been through numerous additional notice and comment periods, has been the subject of a negotiated rulemaking and has been the subject of innumerable staff-initiated negotiations and *ex parte* meetings.

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- **Of the services now contemplated in this proceeding, only LMDS is ready to proceed to immediate auction and implementation.** In this proceeding, the Commission has within its grasp the creation of an entirely new, multi-billion dollar industry that will make the provision of digital, interactive video, telephony and data services immediately available to homes, schools and businesses throughout the country.² The simple fact is that LMDS is available *now* -- not years from now.³ However, it is critical that the Commission allocate spectrum in a way that allows LMDS to reach its promise in a way that is cost-effective and competitive with incumbent cable and DBS operators (such as Hughes' DirecTV).

- **Of the services now contemplated in this proceeding, only LMDS will bring in deficit-reducing auction revenue.** It is clear from the record in this proceeding that of all potential users, only LMDS service providers will pay for the spectrum they use. Moreover, the revenues undoubtedly will be substantial. Under the Commission plan, LMDS spectrum will be auctioned in nearly 500 local markets.

In fact, revenue from LMDS auctions was actually scored by the Congressional Budget Office and assumed by Congress for budget purposes nearly three years ago.⁴ These facts led the United States Senate just last week to urge the Commission to "act expeditiously and without further delay to conduct auctions" for LMDS "in a manner that maximizes revenue, increases efficiency, and enhances competition for any service for which auction revenues have been scored by the Congressional Budget Office and/or counted for budgetary purposes in an Act of Congress". As Senator McCain said in introducing the resolution (with Senator Dominici), "The Commission's rulemaking proceeding on LMDS is over 3 years old. For 3 years, we have been waiting for auction revenues. . . . I would hope that the Commission move forward on those matters . . . and the FCC view this amendment as our imprimatur to move forward. .

² The record in this proceeding is replete with the numerous benefits of LMDS. In a typical configuration, LMDS could provide subscribers with 60 digital television channels, over 200 near video-on-demand channels, two telephone circuits and a high-speed Internet connection.

³ Even Hughes does not anticipate a launch before "late 1998" -- about two and a half years from now. *Letter from Edward J. Fitzpatrick, Vice President, Hughes Communications*, March 15, 1996.

⁴ At the time that the budget assumptions were made, of course, it was anticipated that 0 GHz of spectrum would be auctioned for LMDS.

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[T]his amendment is about the FCC acting in an expeditious manner in order to ensure that when the Congress assumes that money will be coming in, it is in fact coming in." *Congressional Record* at S5424 (May 21, 1996).

By contrast, GEOs have asked in this proceeding for a spectrum allocation of sufficient size, breadth and segmentation specifically to avoid auctions. Indeed, they have already stated in the record of this proceeding that they do not anticipate having to pay anything for the spectrum they seek.

- *The issuance of a further NPRM will delay the implementation of LMDS indefinitely -- all for the apparent purpose of warehousing additional free spectrum for services that are years away from launch if they launch at all.* The fact is that a further notice to move LMDS return links to 31 GHz would delay implementation of LMDS indefinitely -- with no certainty that spectrum would or could finally be allocated for LMDS. The history of this proceeding provides a stark reminder that spectrum allocations can rarely be done with certainty or speed. Even with the best intentions, there is no way that LMDS will be guaranteed a certain amount of spectrum within a specific timeframe. It is perhaps enough to remember that the current proceeding began nearly three and a half years ago with a proposal that LMDS be allocated 2 GHz. Initiation of a further proceeding would simply throw LMDS into yet another proceeding with yet another set of potential commercial and government users - all of which means that the Commission will face the same kind of spectrum allocation decision (albeit with different parties) some months or years from now. Remarkably, this delay in the launch of LMDS in essence would be for the purpose of warehousing spectrum for free for an indefinite number of years for certain satellite companies -- many of which may never launch.

- *The impact of any further delay while the Commission looks for additional spectrum should fall on those services which are not ready for immediate launch -- not on a service which is ready for auction and implementation.* Texas Instruments understands the desire of the Commission to allocate sufficient spectrum to accommodate all potential uses. Clearly, that solution would be preferable to all parties in this proceeding. However, if accommodation of all services is not possible at 28 GHz, Texas Instruments submits that that fact should not be used to disadvantage the only service in this proceeding that is ready for immediate auction and implementation.

It may well be that the Commission could allocate additional spectrum for GEO use in advance of their actual need for it. As the Commission is aware, 31 GHz is a possibility.

While this would require an international reallocation, there is no reason this could not be done

if the government wanted to at the next ITU World Radiocommunication Conference scheduled for next year. Likewise, while NASA has already indicated its unwillingness to share with LMDS in the spectrum band currently warehoused for its un-appropriated Space Station. However, there would appear to be time to explore sharing or relinquishment of some of the Space Station set-aside for use by the GSO/FSS satellite systems. Even assuming that the Space Station is ever authorized and flown, our understanding is that the band was set aside at least in part for wideband video links before the advent of digital video compression. It would not be unreasonable to expect that compression technologies could reduce NASA's video spectrum needs by as much as 75%. In any event, without affecting its intended use, NASA should be able to relinquish a portion of its set-aside for use by its GSO/FSS customers.⁵

- **LMDS is already being implemented in other countries in the 28 GHz band.**

While a spectrum decision has been delayed in the United States, other countries are proceeding now to license LMDS in the 28 GHz band. For example, Canada has allocated three GHz of spectrum for LMDS.⁶ Applications were filed this spring, and the Canadian government expects to license LMDS systems this summer. Likewise, several South American countries are expected to implement LMDS systems in the coming months.

American companies have been the pioneers in the development of this new, technically advanced service and continue to be at the forefront of LMDS development and deployment. But it is ironic that the implementation of this home-grown technology is taking place outside the United States because of the continued delay in the issuance of an LMDS band plan and service rules. As Senator McCain recently said on the floor of the Senate, while the FCC has spent three years considering a band plan, "LMDS technology which was developed by American entrepreneurs is being implemented elsewhere in such places as Canada, South America, and Asia". *Congressional Record* at S5424 (May 21, 1996).

- **Even if spectrum is eventually allocated for LMDS at 31 GHz, such an allocation will render the provision of interactive LMDS uneconomic.** Texas Instruments has already provided an analysis of why an allocation for LMDS at 31 GHz -- even if it could be

⁵ It should also be noted that the 28 GHz spectrum which GEOs seek in this proceeding is in addition to the 1600 MHz of spectrum that they will receive at 18 GHz.

⁶ The spectrum has been allocated in Canada in six 500-MHz blocks. Initial implementation calls for licensing two blocks of the spectrum in local Canadian markets. The additional blocks of spectrum will be licensed in 18 months.

done expeditiously -- will render LMDS in the United States uneconomic. First, a move to 31 GHz would require the redesign of the TI LMDS system. TI anticipates that it would take an additional 18 - 24 months to develop equipment to operate at both 28 and 31 GHz.⁷ Clearly, LMDS would miss a significant window of opportunity while the Commission considers an additional spectrum allocation and while a new LMDS system is being developed.⁸

Moreover, the equipment would of necessity have to be more sophisticated and complicated -- which, in turn, would have a significant impact on costs.⁹ For example, because of the greatly increased spectrum separation, two antennas would be required rather than one, and, depending on the level of video usage, separate transmitters and down converters would be necessary as well. Thus, a move to 31 GHz would double the costs for antennas, transmitters and down converters.

Finally, it should be noted that 28/31 GHz equipment would be developed for and sold only in the United States. As indicated above, other countries are deploying LMDS at 28 GHz -- not 31 GHz -- and undoubtedly will deploy those systems with equipment which is available now and which will be significantly cheaper to consumers.

* * *

⁷ Consumer equipment simply does not currently exist that would read signals over this wide a band of spectrum.

⁸ Texas Instruments' LMDS systems are designed specifically for relatively large (5 kilometer) cells in order to maximize the customer base for each cell. Texas Instruments believes that a five kilometer hub size is critical to the deployment of LMDS as a consumer service. A five kilometer hub, for example, means that the price of hub equipment is shared, on average, by **25 times** as many households than would share the hub cost in a one kilometer cell and that **deployment** costs (e.g., cell sites) could also be kept to a minimum. Accordingly, in Texas Instruments' view, any redesign of equipment at 31 GHz would have to be aimed at maintaining a five kilometer cell.

⁹ Interestingly, while LMDS proponents have been requested on numerous occasions to provide data regarding the cost consequences of various band plans, to Texas Instruments' knowledge, GSO interests have never provided the Commission with an estimate of the costs to them of implementing Option Four Prime other than to state that the cost would be "additional and crippling". *Letter of Edward J. Fitzpatrick, Vice President, Hughes Communications*, arch 15, 1996.

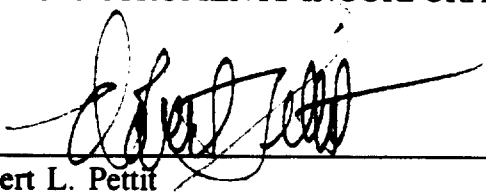
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In sum, relegating LMDS proponents to yet another rulemaking process at the FCC only serves to delay a service which is ready to be implemented immediately and delay service providers who are willing to pay for the spectrum they use. Moreover, even if the Commission eventually adopted a band plan relying on 31 GHz, Texas Instruments believes that such a band plan would be likely to price LMDS consumer equipment out of competition with cable television and DBS. While delay or increased costs will undoubtedly serve the interests of incumbent service providers (like Hughes' DirecTV), Texas Instruments submits that it will not serve the interest of competition. Accordingly, Texas Instruments urges the FCC to reject additional delay as a "solution" for this proceeding, to adopt final rules based on Option Four Prime and to move toward the immediate auction and implementation of LMDS service.

Respectfully submitted,
TEXAS INSTRUMENTS INCORPORATED

By 
Robert L. Pettit
Its Counsel

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